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SELECTED POLICY ISSUES, MEASURES AND PROGRAMMES ON INTER-FIRM PARTNERSHIPS

Report by the UNCTAD secretariat

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PREFACE

1. The Commission on Enterprise, Business Facilitation and Development, at its second session (1-5 December 1997), adopted agreed conclusions on the issue of enterprise development strategies, which contained several recommendations in the area of inter-firm cooperation. Thus, it was recommended that the international community encourage cooperation between firms from developed countries and those in developing countries and economies in transition in order to promote trade and technology transfer. It was also recommended that governments might consider providing support for inter-firm cooperation, which can be a useful tool in facing the pressures of increasing global competition and in enhancing technological capability and innovativeness, which are essential inputs for the development and growth of enterprises, particularly micro-, small- and medium-sized enterprises (MSMEs). Finally, the Commission decided to convene in 1998 an Expert Meeting on Inter-Firm Cooperation.[1]

2. The present report attempts to provide information on some of the issues concerning inter-firm partnerships which might be considered at the Expert Meeting. It briefly considers the impact of partnerships on technological capability-building and export competitiveness of enterprises, and implications of partnering for technological innovation and learning. It also examines policies at different levels that help to create an environment conducive to the formation of partnerships, as well as the role of various support structures and programmes for strengthening inter-firm cooperation. Although most of the research conducted so far on the subject has centred on cooperation among developed country firms, this report concentrates mainly on cooperation between firms in the North-South context. A similar analysis will be undertaken of South-South inter-firm linkages through networking and clustering at the second Expert Meeting, to be held in September 1998.

3. This report may be read together with other documents prepared earlier by the UNCTAD secretariat on inter-firm cooperation through partnership, including an "Overview of activities in the area of inter-firm cooperation: A progress report" (UNCTAD/ITE/EDS/2), which was submitted to the second session of the Commission on Enterprise, Business Facilitation and Development and presents a series of inter-firm partnership cases. These documents are available to delegations on request.

I. IMPLICATIONS OF INTER-FIRM COOPERATION FOR COMPETITIVENESS, TECHNOLOGICAL CAPABILITY-BUILDING AND INNOVATION

4. Inter-firm cooperation has over the past decade become a prominent form of business conduct among firms mainly in the developed countries and increasingly between firms from developed countries and those from developing

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[1] The Expert Meeting was to deal with the impact of government policy and government/private action in stimulating inter-firm partnerships regarding technology, production and marketing with particular emphasis on North-South and South-South linkages in promoting technology transfers (know-how, management expertise) and trade for SME development. See "Report of the Commission on Enterprise, Business Facilitation and Development on its second session", TD/B/Com.3/11.

countries and economies in transition .[2] The pressure of global competition, increased diffusion of information and communication technology and the opening up of national economies worldwide, including liberal foreign direct investment (FDI) and trade regimes have facilitated the development of inter-firm cooperation, which has become an important strategy for the survival and development of firms in a rapidly changing environment.

5. The development of inter-firm cooperation has given rise to a number of issues of concern to different parties, including firms and governments. Among the most important factors motivating companies to enter into cooperation agreements is the need to further the development of technological capacity, improve market access and competitiveness, and promote innovation. Inter-firm cooperation has taken many different forms to achieve these goals. They were discussed in earlier secretariat documents submitted to the second session of the Commission[3] and were further elaborated on in the *World Investment Report 1997*. They include vertical linkages between suppliers and clients, horizontal linkages between firms amongst which specialization makes possible greater efficiencies, and a variety of technology partnerships that help to reduce the costs and risks of innovation.

6. Among the benefits to be obtained from inter-firm production agreements, especially those between clients and suppliers, is flexibility, particularly in a period in which product life-cycles are short and product changes frequent, as compared with the earlier trend towards vertical integration within firms. Through a continuous process of feedback, such agreements contribute to enhancing product quality and, by reducing inventory costs with just-in-time production organization, help to reduce overall production costs. Production depends on customer orders: the system must be able to respond rapidly to demand. It implies a new labour organization: flexible work teams, which are able to perform a greater number of tasks and are organized in small

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[2] Data in the *World Investment Report 1997* show that the number of cross-border agreements between firms based in different countries concluded annually increased from about 1,800 in 1990 to 4,600 in 1995. The share of such agreements among the total number of inter-firm agreements worldwide (including the inter-firm agreements based in the same country) averaged about 61 per cent between the periods 1990-1991 and 1994-1995. The firms from triad countries account for the majority of the agreements concluded during 1990-1995: European firms account for 40 per cent, Japanese firms 38 per cent and the United States firms 80 per cent. However, developing country firms are also increasingly participating in such agreements. In international inter-firm alliances, their involvement increased from about 440 in 1990 to about 2,120 in 1995. Their share in the total number of such agreements increased on average from 27 per cent during 1990-1992 to 35 per cent during 1993-1995. However, during the same periods the share of Central and Eastern European firms decreased by half. In this respect, see UNCTAD, *World Investment Report 1997: Transnational Corporations, Market Structure and Competition Policy* (UNCTAD/ITE/IIT/5), 1997, pp. 12-13.

[3] See UNCTAD, "Progress towards strategies for enterprise development" (TD/B/Com.3/9), 1997; and "An overview of activities in the area of inter-firm cooperation: A progress report" (UNCTAD/ITE/EDS/2), 1997.

production cells, with a flatter hierarchical structure.[4] The growth of small, independent but interdependent firms has proved a vital element in the adjustment of economies to a new competitive environment. Inter-firm cooperation is thus one response to the idea that contacts and cooperation with other firms may be a way for small or medium-sized enterprises (SMEs) to solve their problems and exchange technology information,[5] and that this mutual learning process could be facilitated by some kind of external assistance and brokerage.

7. Inter-firm agreements that regroup similar SMEs could also be instrumental in enabling these firms to export, move into new markets and share the research and development (R&D) burden. Partnerships among firms from different sectors could be the vehicle for bringing together complementary activities in the development of a new product.

8. While the firms' initiatives are necessary, they are not always sufficient for cooperation to occur and the potential benefits to materialize. This is particularly true for SMEs, and firms in developing countries and economies in transition often lack the scanning capabilities, and access to finance and information networks, that make partnering activity possible. A variety of policies, institutions and mechanisms have often been needed to catalyse and support inter-firm partnerships.[6]

9. For the most part, the analysis of experiences with inter-firm cooperation has concentrated mainly on partnerships among firms in developed countries. However, recent evidence suggests that a number of inter-firm agreements are of importance to developing countries. Two kinds may be highlighted: those related to the objectives of *cost reduction*; and those related to *product development for "niche" markets.*[7] With regard to the former, it may be advantageous for a firm from a developed country to find a partner in a developing country when the product cycle is already at a well-developed stage. Such an alliance may take the form of a linkage with the components' suppliers, which may be more or less stable and of a long-term nature. Subcontracting, original equipment manufacturing (OEM) and second-sourcing agreements with a variety of input suppliers are possible examples. With regard to the latter kind, a product development alliance, directed towards the creation of a "niche" market, may represent a mutually interesting strategy since it is not a zero-sum game; this is because new products attract new customers without threatening existing customer bases. New product

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[4] New factories in the automobile industry, such as the Volkswagen factory in Resende, Brazil, have entered into an even closer alliance with their suppliers by bringing them into the plant itself.

[5] S. Arzeni and J.P. Pellegrin, "Entrepreneurship and local development", *OECD Observer*, February-March 1997, pp. 27-29.

[6] Since the early 1980s the European Union, for example, has promoted inter-firm cooperation in R&D through a broad array of innovation policies and programmes. For a detailed review of these programmes, see *Innovation and Technology Transfer* (DG XIII), various issues.

[7] A. Mody, "Changing firm boundaries: Analysis of technology-sharing alliances", in *Industry and Energy Sharing*, Department Working Paper, Industry Series Paper No. 3, World Bank, Washington, D.C.

development adds branches to the underlying cycle of a product class, and increases overall industry profits. An additional advantage is the fact that exploiting "niches" in the domestic market may provide a learning possibility with regard to the development of new products that become internationally competitive in due course.[8]

10. Other forms of inter-firm collaboration include *joint ventures, joint research and development or co-developments, subcontracting, parts and component supplier networks, original equipment manufacturing* and *consortia*.

11. Inter-firm agreements involving developed and developing country firms can be an effective mechanism for technology transfer, including marketing and managerial know-how. The learning process they engender could affect one or more types of technological capabilities, including investment, production and innovation capabilities.[9] Also, they could contribute to institution-building in developing countries and countries with economies in transition, including R&D capacity and innovation. An examination of different forms of cooperation could illustrate the merits of this cooperation. As an example of one form of strategic partnership, the Shanghai Automotive Co, a joint venture between Volkswagen of Germany and Shanghai Automotive Industry of the People's Republic of China, established in 1984, experienced a dramatic increase in local content from 2.7 per cent in 1985 to 90.5 per cent in 1996 for one of its models, Santana B2. The joint venture has also contributed to institution-building by expanding its technical centre in order to establish independent product development.

12. Subcontracting is another form of inter-firm collaboration that has undergone significant changes over the years. In some cases, it has given rise to opportunities for a shift from one-way transfer of technology to strategic partnering activity that involves joint knowledge production and sharing. In connection with such a shift, the following cases may be mentioned:

- Samsung Electronics of Korea, which moved from licensing technology to being a full partner in a consortium with NEC of Japan and AT&T of the United States in the development of Dynamic Random Access Memories (DRAMs);

- Ranbaxy, India's largest indigenously owned pharmaceutical firm at the beginning of the 1990s when it still mainly acquired technology through licensing rather than doing its own research. More recently, the firm has invested heavily in a modern research laboratory which permits advanced R&D in biotechnology. By 1993-1994, it was spending 5 per cent of its sales on R&D and employed some 269 people in R&D activities, including stem-cell-based research and diagnostic kits. With liberalization and increased foreign competition in the Indian pharmaceutical industry, Ranbaxy leveraged its R&D through a strategic

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[8] UNCTAD, "Emerging forms of technological cooperation: The case for technology partnership" (UNCTAD/DST/13), 1996.

[9] S. Lall, *Building Industrial Competitiveness: New Technologies and Capabilities in Developing Countries*, OECD Development Centre, 1990; *id.*, "Technological capabilities and industrialization", *World Development*, vol. 20, no. 2, 1992.

partnership with Ciba-Geigy, now Novartis.[10]

13. Subcontractors, including from developing countries, have become partners in research and design of products and components. In the machine tool industry in Taiwan Province of China, small, machine tool firms work closely with their clients to innovate. By upgrading product design and performance standards they have been able to meet their clients' changing requirements. Although many of these firms also work as OEM suppliers, "OEM... has not meant the replacement of local by foreign designs. Instead, foreign firms have often adapted and placed their own brand names on Chinese-Taipei products".[11]

14. Suppliers can also become partners, as the case of Godwin-Kris Industries Limited of Nnewi, Nigeria, illustrates. "After building up enough capital, the founder reached an agreement with his Taiwanese trading partner to commence manufacturing in Nigeria. Machinery and technical assistance came from Taiwanese partners."[12] Today the firm manufactures a variety of rubber-based automobile parts, which it develops jointly with its partners from Taiwan Province of China. The firm employs five engineers, two chemists and eight technicians, who manage the production process, ensure quality control and develop new products, most of which are now found in countries across West Africa.

15. Inter-firm agreements have often resulted from the strategy of transnational corporations (TNCs). They have led to the transfer of production activities for lower-end products to other developing countries. This is, for example, the case of Japanese electronics companies in their business deals with other Asian countries. The transfer of production activities has often been accompanied by transfer of some innovation activities, such as the setting-up of R&D centres in these countries to design new integrated circuits. Also, FDI by TNCs has led to the conclusion of inter-firm agreements to shift part of their managerial activities to lower-cost Asian countries to reduce cost and adapt products to final markets. To facilitate their innovation activities, TNCs have transferred design tool process technology and quality control know-how to developing countries. For example, a number of TNCs and local companies have sponsored the establishment of a training centre in Penang, Malaysia, to train local engineers in technology, computer-aided design and robotics. TNCs are also assisting local educational facilities in developing countries. This is what Microsoft did in helping to create a software training facility in Shangai University in China.[13]

16. These examples have illustrated the many ways in which inter-firm

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[10] A. Rohini, "Bio-pharmaceuticals in Chinese Taipei and India", in L.K. Mytelka (ed.), *Competition, Innovation and Competitiveness in Developing Countries*, OECD Development Centre (forthcoming, 1998).

[11] A. V. Desai, M. Lautier and H. Charya "Machine tool industries in India and Chinese Taipei: A comparison", in L.K. Mytelka (ed.), *op. cit.*

[12] N. Banji Oyetaran-Oyeyinka, *An Emergent Industrial Cluster in Nigeria*, Ibadan, Technopol Publishers, 1997, pp. 57-59.

[13] UNCTAD, *New Technologies and Technological Capability-building at the Enterprise Level: Some Policy Implications* (UNCTAD/DST/11) (United Nations publication, Sales No. E-95.II.D.24), 1996.

cooperation has contributed to technological capability-building and innovation, and exports. The effects of this cooperation will not be the same for all countries and enterprises. Much depends on the social and contextual factors prevailing in the partner developing country, particularly the policy environment as discussed in the following section.

II. CREATING A CONDUCIVE POLICY ENVIRONMENT

17. Partnerships involving enterprises from developed countries and those in developing countries and countries in transition are formed by the participating partners with a view to enhancing their competitive edge and fostering the process of technological capability-building. But the process of development of such partnerships is not evolved in isolation and many factors at different levels may determine the scope of this process and its success or failure. The empirical evidence collected so far by the UNCTAD secretariat indicates that inter-firm cooperation through partnerships was particularly successful in those cases where it was stimulated by an array of policies, incentives and supportive measures taken at macro, meso and micro level in both host and home countries. Below is a short description of various policy measures of this kind.[14]

(a) Policies at macro-level: government policies

18. Macroeconomic conditions, particularly in host countries, crucially affect the process of inter-firm partnership design and implementation. They are especially important because they simultaneously affect: (i) foreign enterprises' incentives to enter into partnering, and (ii) local partners' capability and desire to do the same. Foreign enterprises will hesitate to venture into cooperative agreements with enterprises in developing countries or countries in transition if macroeconomic policies are not sufficiently credible and stable. The direction of policies, their consistency and stability and the credibility of the government's commitment to maintain the chosen policy framework are essential for decisions with a long-term perspective, such as those relating to partnerships, as these entail mutual learning, constant interaction and cooperative behaviour.

19. The macroeconomic framework, while influencing foreign enterprises' decisions to enter into partnering ventures, also has an important effect on local partners' attitudes towards collaboration and technology and industrial development. If, for example, the local partner was enjoying a monopoly in its domestic market niche, and would not be interested in diversifying its activities towards new markets or product lines, its desire to undertake a costly and difficult technology partnership with a foreign partner would be

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[14] The general policy framework and enabling environment for inter-firm cooperation have been examined in the following UNCTAD publications: "Technological capacity-building and technology partnership: Field findings, country experiences and programmes" (UNCTAD/DST/6), 1995; "Emerging forms of technological cooperation: The case for technology partnership" (UNCTAD/DST/13), 1996; "Exchanging experiences of technology partnership: The Helsinki meeting of experts" (UNCTAD/DST/15), 1996; and "An overview of activities in the area of inter-firm cooperation: A progress report" (UNCTAD/ITE/EDS/2), 1997.

slight. Its need and aspiration to increase static and dynamic efficiency in production, thus upgrading technological capability, would be restrained. In contrast, if the enterprise had to face competition at home and from foreign manufacturers, it would be more inclined to seek all possible ways of improving its capabilities and improve its position in the market, including through a technology agreement with a foreign partner. Efforts to upgrade design, production and organizational capabilities are all necessary elements if an enterprise is to become an attractive partner for a potential foreign associate, and a competitive and simultaneously supportive framework ensures that enterprises make such efforts.[15]

20. Enterprises with an already satisfactory level of managerial, marketing and technological capabilities qualify as attractive partners in a partnership, and they are in turn likely to be able to benefit more from the opportunities which collaboration offers. Thus, policies to promote successful inter-firm cooperation must also contribute to the development of local technological capabilities. This could be achieved through a system of incentives, measures to promote capacity-building and support to relevant institutions by the government. In this context, incentives may include, for example, tax regulation measures and price and credit policies. Investment in capacity-building may particularly include human capital, making specialized skills available and improving the organization of production and marketing. Specific institutions that are especially relevant in this respect include those that provide training and education, first of all technical education. Technology infrastructures and policies are also crucial in facilitating the creation of the requisite network of information flows between firms and institutions that supply services such as technical standard setting, quality assurance, testing, provision of market information, and R&D. Furthermore, an institutional set-up is needed to remedy shortcomings in the financial system and those due to administrative inefficiency, as well as to promote contacts between suppliers and buyers of inputs and products. Additional complementary policies that may facilitate inter-firm cooperation and increase the attractiveness of developing countries' firms as partners include policies to improve factor endowments. In addition to policies for building human capital, those providing a framework for sustainable development, economically and ecologically, such as an improved natural resource management, are now important macroeconomic tools. Thus, international markets are increasingly demanding environmentally sound technologies, both as a response to regulatory demands and because of attempts to identify new market niches to increase competitiveness.

21. The legal framework governing inter-firm collaboration is another important area for government involvement in promoting partnerships. This includes the introduction of commercial law, including bankruptcy procedures and a system of property rights, and of clear and practical rules to govern such collaboration. When formulating and adjusting the legal framework, governments may attempt to carefully balance anti-trust measures and stimuli to inter-firm cooperation.[16]

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[15] UNCTAD, "Emerging forms of technological cooperation: The case for technology partnership", pp. 42-43.

[16] See J. Meyer-Stamer, "Inter-firm cooperation and systemic competitiveness", paper presented at the UNCTAD internal workshop, 17 September 1997.

22. Finally, a prerequisite for forming cross-national partnerships of any kind between firms, whether from developed or developing countries, is that the domestic economy and industry are structured in a way that encourages and promotes a "culture of partnership". Such a culture should be reflected in government policy through non-bureaucratic and business-oriented procedures which could provide faster and more effective assistance to the development of partnerships. While this needs to happen "from the ground up" in terms of enterprise culture, it is also necessary to have national policies which are conducive to innovation and enable the establishment of the necessary extension and information services. This interplay between enterprise development and national science and technology policy provides for an enabling environment conducive to inter-firm cooperation.[17]

(b) Policies at mesoeconomic level or the level of intermediaries

23. Policies applied at the macroeconomic level could be effectively complemented by the activities of different institutions active at the intermediate level between government and individual enterprises. These can be especially useful in forming partnerships helping to match potential partners, disseminating information, reducing risk and building the mutual trust that is at the heart of partnering. Such institutions include regional authorities, business associations, chambers of commerce and industry, technology development and promotion centres, as well as, particularly in poor countries with a large informal sector, community organizations, churches and government departments, especially those providing extension services.

24. Financial intermediaries such as merchant banks, particularly those operating at the local level, have an important role to play. Such banks with a solid knowledge of the socio-economic environment of local enterprises may perform a stimulating function with regard to inter-firm cooperation through the supply of financial and other services supporting the international expansion of enterprises, particularly SMEs, and their international technology collaboration efforts. Other institutions that might play an important mesoeconomic role and promote inter-firm cooperation are non-governmental organizations (NGOs), acting as a mechanism to increase the level of mutual confidence among partners, and at the same time supplying a variety of real services, training and technical assistance. NGOs, particularly those which are located in developing countries and are aware of the needs of local firms, could be instrumental in supporting partnership linkages, including those with a South-South dimension.

(c) Policies at the microeconomic or enterprise level

25. All policies are ultimately aimed at assisting firms in their efforts to find partners to establish cooperation schemes, and derive therefrom commercial advantages. Therefore, all of the above considerations concerning macro and meso levels are relevant also in terms of the micro level. Enterprises from technologically weaker countries need a certain level of capabilities and efficiency to qualify as attractive for more industrialized countries, either in a North-South or South-South context. Policies to increase the supply of human capital, and science, technology and R&D infrastructures, will facilitate the supply response to the entrepreneurial demands for technological capacity

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[17] UNCTAD, "Exchanging experiences of technology partnership...", p. 212.

and will have the indirect result of fostering inter-firm partnership. Technological capability is essentially a firm-level concept, which needs a firm-level focus and systematic development efforts, backed by the necessary financial resources.

26. One point that has to be emphasized is that effective and solid partnerships at the enterprise level need time and effort to develop. Joint ventures, for example, are the outcome of a long interaction, often characterized by a process of trial and error in learning how to proceed successfully. In this sense, they are facilitated by the existence of previous inter-firm linkages and activities: for example, operating in a subcontracting, licensing or franchising arrangement may be a useful "learning ground". It should be realized that partnership schemes involving enterprises from developing countries are often of an asymmetrical nature, and that actual cooperation between asymmetrical partners is hard to achieve. Ways for capacity-building by the weaker partner might be explored, and could be facilitated by diverse support measures.[18] It would be important for these enterprises - most of them SMEs - to have access to technology and to be able to increase productivity through shared learning. In this respect, cooperation with other local or foreign firms provides know-how and the capacity to transform the product, production methods and marketing organization. It has been observed that such SMEs have seen an initial commercial relationship with a foreign partner evolve into one of sharing, for example, of training services, maintenance, joint production of spare parts and assembly.[19]

III. SUPPORT STRUCTURES, MEASURES AND PROGRAMMES FOR INTER-FIRM COOPERATION

27. Substantial evidence - mostly from developed countries - indicates that the efforts of SMEs to pool their resources, information, technologies and skills have often had a positive effect on their competitiveness and industrial efficiency. In a number of cases, inter-firm cooperation has resulted in an accelerated process of learning and creation of technological capacities. Thus, the obstacles deriving from minimum production scale requirements, economies of scale, and aspects concerning information, commercialization, technology acquisition and adaptation, which are often barriers to the achievement of competitiveness by SMEs, may be overcome by pooling resources. This option is more and more necessary in view of the removal of trade barriers, thereby widening the markets in which competition takes place at a global level.

28. It is important to define measures which, at the macro and micro levels, promote such a process; in this context, it would be useful to examine what the specific role is that governments, publicly funded R&D and technical support services, enterprises themselves and their representative organizations, financial institutions, specialized professional associations and international organizations can play to facilitate partnerships. An illustration of such measures is provided in table 1.

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[18] UNCTAD, "Emerging forms of technological cooperation...", p. 46.

[19] UNCTAD, "Exchanging experiences of technology partnership...", p. 214.

Table 1. Examples of measures supportive of inter-firm cooperation among SMEs

Who?	What?	How?
Central government	Encourage inter-firm relationships	Value-added tax rather than cumulative sales tax Realistic regulatory framework: licensing, labour, taxation, safety, environment (no incentives for informality or semi-formality) Transparent proceedings of public administration Transparent foreign trade licensing
	Direct support to SMEs: technology	Finance decentralized activities on a competitive basis
	Direct support to SMEs: exports	Export promotion agency
	Direct support to SMEs: finance	Finance decentralized activities on a competitive basis
Regional government	Encourage inter-firm relationships	Public purchasing policy geared at groups/consortia of SMEs
	Direct support to SMEs: technology	Technology demonstration centres Extension service
	Direct support to SMEs: finance	Credit guarantees for firms with strategies and projects formulated in the context of regional development strategy Subsidizing networking initiatives to cover transaction costs
Local government	Encourage inter-firm relationships	Involve groups of SMEs and their associations in formulation of local development strategy Public purchasing policy geared at groups/consortia of SMEs
Business associations	Stimulate information exchange between firms	Establish sectoral and topical working groups, managed/moderated by associations' professionals Organize seminars with external speakers Subcontracting clearing-houses
Research institutions, universities, training institutions	Direct support to SMEs: education and technology	Tailor-made training course for groups of SMEs Dissemination of technology information
Medium-size and large firms	Supplier development	Individual assistance to suppliers Training courses for groups of suppliers

Source: adapted from J. Meyer-Stamer, *op.cit.*

29. While technology partnerships in the OECD countries involving larger firms have mainly evolved through the dynamics of the enterprise sector, research has shown that a series of steps and measures are necessary at the beginning of cooperation to bring "would-be partners" together for smaller firms. This is particularly important in developing countries. Thus, a study prepared by UNCTAD concluded that a growing number of SMEs were eager to participate in activities at the global level. However, the existence of an enabling environment that includes incentives, an adequate legal and policy framework and support mechanisms to guide them through the initial stages is of critical importance.[20]

30. European SMEs are the partners in the multi-disciplinary and multi-sectoral programme of R&D carried out by BRITE (Basic Research in Industrial Technologies for Europe). BRITE was designed to revitalize traditional industrial sectors by introducing new processes and organizational systems to obtain total quality, and incorporating technological, economic and environmental considerations in the innovation process applied by enterprises. An important role in promoting the participation of SMEs has involved the application of cooperative research projects (CRAFT) through the setting-up of "thematic networks" and promoting partnering activities between European enterprises, research organizations and universities. To this end, the programme has aimed at encouraging horizontal cooperation between multi-disciplinary teams and vertical cooperation between suppliers, producers and users within the European region. The initial BRITE was followed by BRITE/EURAM (European Research in Advanced Materials). The European Commission provides 50 per cent of the costs of projects, which are selected following a call for proposals; 75 per cent of this 50 per cent is allocated this way, with the remaining quarter of the BRITE-EURAM budget allocated to initiatives designed to boost the programme's impact. The programme has been considered innovative and effective. A 1994 evaluation report presented direct and indirect economic effects of a sample of 50 BRITE-EURAM projects. These yielded an average economic return during the five-year period following the projects research of ECU 7 for every 1 ECU invested.[21]

31. Experiences with firm-based partnerships between enterprises from developed and developing countries have shown that in many cases these did not evolve spontaneously even where a favourable policy environment was in place, but beyond that, a "seed mechanism" or information clearing-house initiated or facilitated first contacts between potential partners. Thus, some part of the discussion has to centre on the institutional framework of partnerships. What are the dynamics of the system as a whole in which enterprises operate and collaborate? What legal form do partnerships need to take in order to be sustainable, and what measures would support a "culture of partnership" that facilitates firm-level cooperation?

32. Technical assistance at the international level has in the past been mainly dedicated to government-centred projects. International cooperation efforts based on enterprise development must necessarily lead to new forms of such assistance and to a shifting role of international organizations and bilateral agencies in terms of funding and implementing projects which involve

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[20] UNCTAD, "Emerging forms of technological cooperation...".

[21] See European Commission, *RTD Info* No. 14, January 1997.

the private sector. How could these effectively support initiatives for partnership?

33. Inter-firm partnership can potentially contribute to the more effective integration of developing countries' firms into the world economy. Firms in least developed countries in particular do not have the funds, trained human resources or infrastructure to pursue a technology-based innovation process completely on their own. Experiences of developing country firms could reveal some of the dynamics that make partnerships work. From these experiences it might be possible to develop mechanisms to transfer "best practice" in partnering activity and diffuse mechanisms that could provide the backing for inter-firm partnerships. These bear further discussion.

34. Like many other forms of inter-firm cooperation, partnership agreements to be successful need a variety of supportive measures by governments and the business community. In recent periods a number of national and international incentive schemes have been put into operation in developed countries, with some of them especially directed to developing countries and transitional economies. North-South inter-firm cooperation thus becomes part of a three-way partnership in which Northern governments and international organizations play a critical supportive role.

35. There are a number of pilot projects, mechanisms and programmes addressing issues such as financing of the various phases of technology transfer, creating awareness, finding partners, launching specific transfer processes and encouraging R&D institutions to transfer technology. For example, the United States Agency for International Development (USAID) supported a five-year University-Industry Linkages and Economic Development Programme. This was designed to ensure collaboration between Northwestern University in the United States and the Autonomous University of Yucatan in Mexico, focusing on linkages between each university and each local productive sector. Its objectives were to develop joint research capabilities as well as an academic programme in technology and organizational performance, and to extend extension programmes of the Mexican university to assist local manufacturers.[22]

36. The Technology Partnership Initiative (TPI), a British programme funded by the Official Development Assistance (ODA), promotes inter-firm cooperation in the area of environmental technology.

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[22] A. Wad, "University-industry linkages and economic development: Lessons and analytical perspectives drawn from the UDLP project", paper prepared for the VIth Symposium on Technology Management, Autonomous University of Yucatan, Merida, 4-5 December 1997.

Inter-firm supportive programmes:

Technology Partnership Initiative, United Kingdom

Objectives: The Technology Partnership Initiative (TPI) of the United Kingdom's Department of Trade and Industry promotes technology cooperation between British and developing country firms in the area of environmentally sound technologies (ESTs). The TPI's main aim is to promote direct access by developing countries' businesses and newly industrializing economies to information about ESTs available in the United Kingdom, and about the companies that produce them.

Support provided:

- provision of information about opportunities for joint ventures and other forms of partnership;
- making available to businesses in developing countries case studies and guides to best practice;
- provision of information about technological solutions and techniques, and demonstration of leading edge technology;
- sponsorship of seminars on environmental management and training in several developing and newly industrializing countries;
- support for multilateral efforts aimed at promoting ESTs.

Methodology: The TPI has established a number of criteria for promoting partnerships. The technologies involved have to be affordable; they have to be appropriate to the needs of a wide range of industrializing developing countries; and they have to enable businesses operating in developing countries to grow in accordance with sustainable development principles. The TPI mainly works as an information clearing-house, but also carries out more direct activities such as training seminars.

37. A Finnish programme promoting inter-firm linkages between Finnish and foreign companies concentrates mostly on contacts with other advanced industrialized countries; more recently, it initiated linkages with China.

Inter-firm supportive programmes:

Partnerlink Programme, Finland

Objectives: The Partnerlink Programme is aimed at commercializing Finnish innovations in international markets and assisting, in particular, innovative SMEs and the business service organizations that aid them (including consultants, technology centres, development companies, chambers of commerce and industry associations). Each project has to secure at least one strategic alliance agreement between Finnish and foreign companies. The programme promotes the internationalization of SMEs and business service organizations; the latter are to become part of a functioning international contact and expert network.

Support provided:

- project-supported assistance by a business service organization (the recipient companies are not billed for the services provided), including active seeking of cooperation partners in other countries;
- seeking and selecting potential cooperation partners;
- assistance in the negotiating process;
- follow-up of strategic alliances in the implementation process.

Methodology: The Partnerlink Programme is made up of individual projects involving European countries, the United States, China, the Republic of Korea and Australia. Each project involves several companies and one or more business service organizations, the role of the latter being to seek potential foreign cooperation partners for Finnish companies in collaboration with foreign service organizations, and to participate in relevant negotiations. Client companies are sought out among technology-intensive firms, and use is made of Finnish industrial attachés and commercial counsellors and secretaries based in foreign countries.

38. Some of the above initiatives such as the TPI primarily target newly industrializing countries. Can the new inter-firm alliances be further extended to include a larger number of enterprises in developing countries, including least developed countries (LDCs) and economies in transition?

39. A number of United Nations organizations have aimed at supporting inter-firm cooperation, e.g. the United Nations Organization for Industrial Development (UNIDO), which organizes programmes and events such as techmarts, investmarts and intechmarts, and has prepared tools to assist in the partnership process. UNCTAD has also been contributing to examining the potential of inter-firm cooperation, both in the North-South and South-South contexts. Examples of this work are the two workshops, held in Geneva in 1995 and in Helsinki in 1996, on various aspects relating to technology partnerships; and the first Subregional Workshop on Asia-Africa Trade, held in Zimbabwe in November 1997, which provided opportunities for entrepreneurs from different regions to meet and to network among themselves. The UNCTAD Asia-Africa Cooperation project included workshop cum study tours in Indonesia and Thailand in November 1996, and thus provided, for example, the possibility

for a fashion designer from Ghana to establish a quality design network with South-East Asian companies. A number of inter-firm linkages have also been initiated through the UNCTAD EMPRETEC programme, including enterprise networking between Asia and Africa and with a particular emphasis on SMEs. SMEs can also find partners for joint ventures and other types of inter-firm cooperation through the electronic trading opportunities system of the UNCTAD Global Trade Point Network (GTPNet).

40. Similarly, a Yale University initiative, in collaboration with the United Nations Development Programme (UNDP), supports the creation of public-private partnerships to tackle water, sewage and energy problems in urban environments. The project emphasizes eco-efficiency, stakeholder participation and replicability. It uses ODA to leverage private sector investments by creating joint ventures, while building an effective enabling environment with solid supporting mechanisms at the same time.[23]

41. In addition to assistance from bilateral sources and UN agencies, regional bodies have supported North-South partnering activity. The European Union, for example, plays a dynamic role in supporting partnerships concerning technology, production and marketing and promoting technology transfer and trade for SME development at various levels. Various specific programmes backed by the European Union function within the framework of ECIP (European Community Investment Partnership), which has as its main objectives to encourage investment by European firms in Asia (through the ASIA-INVEST Programme), in Latin America (through AL-INVEST) and in the Mediterranean countries (through MED-INVEST). The ECIP programmes operate via a network of financial institutions and mainly facilitate four critical stages of business investment: (i) project identification and the search for potential partners, working through chambers of commerce, trade associations and public institutions providing support to enterprises; (ii) preparation prior to the setting-up of a partnership, e.g. partner search; (iii) financing of capital requirements; and (iv) development of human resources, training and management assistance. Also supporting inter-firm partnerships, the Trade and Technology Information Promotion System (TIPS) operates a computerized technology support company for various regional programmes throughout the world, with the assistance of the European Union.

42. Support to inter-firm partnerships has also been provided by the European Union through the Centre for the Development of Industry (CDI). The latter is an EUACP (European Union-Africa, Caribbean and Pacific) joint institution financed by the European Development Fund under Lomé Convention provisions.[24]

43. In the Western Hemisphere, the Organization of American States, within the framework of the Partnership for Development of the Americas, focuses among other things on science and technology cooperation, and provides support to the improvement of scientific partnerships and technological ventures in the region. In addition, it pursues new partnerships in the field of sustainable development, including the facilitation of information exchange on

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[23] Environmental Health and Safety Management, Inc., *EHS Management*, 27 October 1997.

[24] See UNCTAD, "Emerging forms of technological cooperation...", p.24.

environmentally sound technologies.[25] In Asia, and parallel to a process which is market-led and where the main actors are networks of firms and corporations regionalizing production, a more formal institutional process led by governments is drawing together agents from public and private sectors into enhanced regional economic cooperation projects. Organizations such as the Association of South-East Asian Nations (ASEAN), the East-Asian Economic Caucus (EAEC)-ASEAN plus Japan, the Asia Europe Meeting (ASEM) and the Asia-Pacific Cooperation grouping (APEC) have established diverse forums for promoting new forms of cooperative ventures, including those among firms.[26] The recent financial crisis in Asia has surprised investors and politicians alike at home and abroad and encouraged speculation about its impact in the short and long term. The immediate effect has been felt in the postponement of planned investment projects in the region and reduction of exposure of foreign firms to this market. The crisis has adversely affected the earnings of foreign companies in the region and may have made some of them less enthusiastic for the time being about entering into new cooperation agreements with local firms. Other firms, however, see this crisis as offering opportunities for mergers and take-overs and for concluding cooperation agreements with local firms with a view to consolidating their position in this lucrative market. These companies have a longer time perspective and their decisions are based on fundamentals, including technological capability-building over the years in the region.

44. Since 1992, when it opened its doors in eight Latin American countries, the Programa Bolivar - backed by the Inter-American Development Bank - has been promoting international partnerships with businesses in Latin America and the Caribbean. It has been operating a mechanism in different countries to bring together two or more parties in doing business: buyers and sellers, innovators and financiers, promoters of ideas and those offering practical applications. In every case the programme operates transnationally, as it is seen as instrumental in allowing small and medium-sized companies to go international and achieve competitiveness. An analysis of the programme undertaken in 1996 considered, however, that its design had been excessively optimistic, particularly with regard to the time-frame for adopting a self-financing mechanism for inter-firm partnership.[27]

45. Until recently, development cooperation aimed at technology transfer and development or for production and export promotion purposes in developing countries often took the form of support for large state-owned companies, with donors channelling state-to-state development cooperation exclusively to the public sector and parastatal bodies. National donors have now gradually shifted to the notion that state-to-state development cooperation can also include support for the development of private sector enterprises, and such support has increasingly taken the form of business-to-business (B-to-B) programmes. An example of these is the Technology Partnership Programme from

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[25] See, for example, OAS Resolution 1420 (XXVI-0/96) on the Financing of the Common Market of Scientific and Technological Knowledge Program (MERCOCYT) for Follow-up and Supervision of the Actions Recommended by the Ministers of Science and Technology.

[26] See R. Higgot, "Shared response to the market shocks?", in *The World Today*, January 1998.

[27] See Inter-American Development Bank, *Annual Report of the Evaluation Office for 1996*, July 1997.

Denmark.

Inter-firm supportive programmes:

Danish support to technology partnerships

Objectives:

- to establish contacts between SMEs in Denmark and similar business ventures in developing countries; for the latter this may involve improving the efficiency of production and the quality of product lines, adding new products to the existing range or introducing new technology;

- to contribute to a sustainable economy and technology development;

- to assist in making transferred technology more applicable locally as well as more viable commercially;

- to improve communication between technology producers and users;

- to prepare the way for a long-term learning and incremental innovation process.

Support provided: Basic support includes start-up activities, initial visits, required studies, technical assistance and training. In addition, a swap or a loan facility supports imports of capital goods, raw materials, components and the payment of licence fees, royalties etc. not covered by financing grants. Under the programme, the Danish Federation of Small and Medium-Sized Enterprises also assists developing countries' firms in finding Danish partners.

Methodology: The support provided by Denmark to technology partnerships through different schemes has included a variety of activities, such as assisting Danish companies in matters concerning technology transfer to developing countries, informing companies about problems and possibilities in the markets of developing countries, administering a subsidy scheme from which Danish companies may obtain financial support for developing products adapted to markets of the developing countries, and operating a private sector development programme to support the establishment of long-term collaboration between Danish business and enterprises in developing countries.

46. An analysis focusing on partnership development involving institutions from industrialized countries concentrating mainly on Denmark and developing countries (mainly least developed countries) was presented at the Helsinki Workshop of Experts on Technology Partnership.[28] In examining these programmes, it was noted that since 1990 a number of initiatives had been taken, e.g. pilot projects specifically targeting private sector development through partnership development, with technology transfer as one of their principal objectives.

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[28] See H. Genefke Jorgensen, "Danish partnership programmes: Lessons learned", in UNCTAD, "Exchanging experiences of technology partnership...".

The author's review of the Danish and two similar Swedish programmes provides some points for reflection on the issue of best practice in inter-firm partnering activity:

(i) Finding the right partners through a matching process was a key element in successful partnership, and probably the key problem as well;

(ii) The enabling environment was considered to be of great importance for a partnership programme's success, particularly with regard to workforce skills, accessibility of spare parts and other services. Also, local management traditions seemed to play an important role in partnership success;

(iii) The analysis of the different programmes came to different conclusions about the optimal size of enterprises for matching. One of these programmes, the Cooperation for Technology Transfer (CTT) Programme, stressed the importance of small, flexible, action-oriented enterprises managed by the owner and intended to continue concentrating on this segment, while another, the Private Sector Development (PSD) Programme, stressed that partners which were too small for the Danish partner enterprise were not cost-effective;

(iv) A genuine and wholehearted motivation for partnership was seen as an important condition for success. If the developed country partner's objective was mainly to promote and sell its products in new regions, the partnership was doomed to failure. Mutual expectations regarding the outcome of the partnership were to be set out as early as possible in the partnership formation process, for instance by means of a mutually agreed letter of intent;

(v) Partner developing country enterprises, like their counterparts, were to work on market terms;

(vi) With respect to the support programme's input to the partnership project, effective assistance was considered extremely important for fostering contacts as well as for giving potential partners a proper opportunity to assess the potential of a long-term engagement;

(vii) It was noted that in some earlier projects, subsidies had been used to enhance partnership, the intention being to phase them out later. This, however, often seemed difficult to carry through, and could lead to market distortions. Part-financing of project components seemed to be a new way of ensuring partners' commitment to decisions and investments made;

(viii) The analysis of whether to focus in the partnership programme on a given sector and/or area appeared not to be conclusive. Danish programmes tended not to focus, while Swedish ones appeared to do so;

(ix) Substantial administrative flexibility in managing the partnership project was needed, as overall conditions in the world economy, including the developing countries, were changing rapidly. SMEs needed quick decision-making and unbureaucratic administration. A small group of people - and always the same people - should be in charge of decision-making on the basis of clear guidelines. The importance of local involvement in programme administration was stressed;

(x) Programmes based on development cooperation tended to move in the direction of leaving as many decisions as possible to the two partner enterprises themselves, ensuring that they assumed real ownership of the project.

47. While a systematic analysis of different inter-firm partnership-supporting programmes appears to be lacking, most of these programmes seem to have a supply-driven character, corresponding to a large extent to the structures set up for SME development at the national level. An interesting proposal regarding how a demand-driven approach could have a significant impact on SMEs' productivity and quality of output makes the case for the "right kind of procurement-linked assistance".[29] On the basis of a study of government-led procurement in the Brazilian State of Ceará, the authors identified conditions under which a demand-driven approach to government purchases from SMEs could effectively contribute to their development. They contend that a demand-driven approach to procurement works better because it forces support agencies to fashion customized assistance - in the case presented, the SME support agencies were the State Department of Industry and Commerce (SIC) and the Brazilian Small Enterprise Assistance Service (SEBRAE). Criteria for procurement aimed at SME development drawn from the study included the following: procurement should be contracted with groups of firms[30] - and payment to each producer should follow exclusively upon delivery of products of the whole group, the quality of which conforms to standards; procurement units should not be *forced* to buy from small firms, and the SME support units should be separate from the purchasing ones; procurement of this kind should make a substantial part of the payment to suppliers upfront (in the Ceará case, 50 per cent) for working capital purposes; and the SME support agency must earn a small commission on the contract. If such approaches result in a stronger SME sector, this would facilitate companies' consideration by of international inter-firm cooperation possibilities.

IV. SPECIFIC ISSUES FOR CONSIDERATION AT THE EXPERT MEETING

48. Set out below are a number of specific issues for consideration at the Expert Meeting.

(a) What are the implications of partnering and networking for the competitiveness and technological capability of firms from developing countries and transition economies in the short and long term? Does inter-firm collaboration bring about a sharing of technical knowledge and encourage patterns of local technical learning? Has this advanced product and process development?

(b) Assuming that more extensive research and exchange of experiences will show that firms in developing countries and countries in transition, like their counterparts in developed countries, may benefit from partnering activities, what basic conditions must exist in order to motivate companies to engage in partnerships and other forms of inter-firm

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[29] J. Tendler and M. Alves Amorim, "Small firms and their helpers: Lessons on demand", in *World Development*, vol. 24, no. 3, 1996, pp. 407-426.

[30] Local firms benefit from partnering in order to meet contract specifications in government procurement.

agreements (e.g. overall legal context, intellectual property rights system, security for investments made in a foreign country, tax system, general and regional policy frameworks)?

(c) What effects could strategic partnerships with firms from the industrialized countries have on those firms considered to be potential competitors in the international markets in the long run?

(d) What are the experiences with existing regional and bilateral programmes supporting inter-firm cooperation as to their impact and implications? An assessment could include the following:

(i) An examination of specific experiences with partnership arrangements and enterprise-enterprise cooperation, including the role played by these enterprises themselves as well as by business associations, service centres and information clearing-houses; this would include an assessment of the factors that led to the success or failure of such initiatives;

(ii) The identification of policy-related and institutional prerequisites for promoting successful partnerships and for providing an adequate enabling environment; and

(iii) The mapping of steps to be taken to operationalize the concept of strategic partnership, including possible support from the international community.